AMENDMENTS TO THE CLAIMS

Claims 1-32 (Canceled).

33. (Currently amended) An oil from water separator comprising:

an oil disengagement chamber adapted to receive an oil and water mixture and retain it for a sufficient time in a relatively undisturbed state whereby oil in the mixture floats to the top of the mixture resulting in a substantially oil free volume of water having a layer of oil derived from said oil and water mixture floating on the surface thereof;~~,~~

~~said oil disengagement chamber partially separated from~~ an effluent water chamber partially separated from said oil disengagement chamber by an under flow baffle which ducts said substantially oil free volume of water to said effluent water chamber, the oil disengagement chamber having a chamber low liquid level which is higher than the underside of the under flow baffle, the outflow of said substantially oil free volume of water from said effluent water chamber being limited ~~by flow retarding means to~~ at a rate ~~of outflow which is~~ as a function of the head of the liquid in said effluent water chamber; and

a flow retarding means comprising at least one siphon coupled to said effluent water chamber to limit the rate of outflow of said substantially oil free volume of water from said effluent water chamber wherein said flow retarding means primes at a chamber high liquid level and loses prime at said chamber low liquid level such that ~~wherein~~ during operation, the level of said oil and water mixture will rise from ~~a~~ said chamber low liquid level up to a higher liquid level and then return to said chamber low liquid level, thereby defining an oil and water mixture active lag capacity within an oil and water mixture accumulation volume in said oil disengagement chamber and wherein said flow retarding means operates to accumulate said oil and water mixture in said oil disengagement chamber in said oil and water mixture accumulation volume above said chamber low liquid level ~~and wherein said flow retarding means comprises at least one siphon which primes at a chamber high liquid level and loses prime at said chamber low~~

~~liquid level~~ and wherein said accumulation volume is sized with reference to inflow rate and

~~(a) inflow rate; and~~

~~(b)~~ desired residence time of said oil and water mixture in said oil disengagement chamber such that, for a predefined range of inflows into said oil disengagement chamber, outflow from said effluent water chamber will contain a proportion of oil in water substantially below a predefined limit.

Claims 34-59 (Canceled).

60. (Currently amended) A method of converting a separator which has an oil disengagement chamber and an effluent water chamber partially separated from said oil disengagement chamber by an under flow baffle ~~which has an oil disengagement chamber which~~ such that the separator normally operates liquid full, to a separator which operates in a manner whereby liquid level in said separator will vary with time and rate of inflow into said separator, said method comprising:

installing a flow retarding device in the form of at least one siphon in or in association with a weir wall of the separator so that a rate of outflow of a substantially oil free volume of water from the effluent water chamber is controlled as a function of a head of liquid in the effluent water chamber, such that during operation, the oil disengagement chamber receives an oil and water mixture and retains it for a sufficient time in a relatively undisturbed state to allow oil in the mixture to float to the top of the mixture resulting in a substantially oil free volume of water with a layer of separated oil floating thereon wherein the substantially oil free volume of water flows to the effluent water chamber under the under flow baffle to define the head of liquid in the effluent water chamber, the oil disengagement chamber having a chamber low liquid level which is higher than the underside of the under flow baffle, and wherein the flow retarding device operates to accumulate the oil and water mixture in the oil disengagement chamber such that the level of the oil and water mixture rises from said chamber low liquid level up to a higher liquid level and then returns to said chamber low liquid level by the action of the

flow retarding device thereby defining an oil and water mixture active lag capacity within an oil and water mixture accumulation volume in the oil disengagement chamber, wherein the flow retarding device primes at a chamber high liquid level and loses prime at the chamber low liquid level and wherein said accumulation volume is sized with reference to an inflow rate and desired residence time of said oil and water mixture in said oil disengagement chamber such that, for a predefined range of inflows into said oil disengagement chamber, outflow from said effluent water chamber will contain a proportion of oil in water substantially below a predefined limit.

~~into an oil from water separator having an oil disengagement chamber adapted to receive an oil and water mixture and retain it for a sufficient time in a relatively undisturbed state whereby oil in the mixture floats to the top of the mixture resulting in a substantially oil free volume of water having a layer of oil derived from said oil and water mixture floating on the surface thereof, said oil disengagement chamber partially separated from an effluent water chamber by an under flow baffle which ducts said substantially oil free volume of water to said effluent water chamber, the oil disengagement chamber having a low liquid level which is higher than the under flow baffle, the outflow of said substantially oil free volume of water from said effluent water chamber being limited by flow retarding means to a rate of outflow which is a function of the head of the liquid in said effluent water chamber, and wherein during operation, the level of said oil and water mixture will rise from a chamber low liquid level up to a higher liquid level and then return to said chamber low liquid level, thereby defining an oil and water mixture active lag capacity within an oil and water mixture accumulation volume in said oil disengagement chamber and wherein said flow retarding means operates to accumulate said oil and water mixture in said oil disengagement chamber in said oil and water mixture accumulation volume above said chamber low liquid level and wherein said flow retarding means comprises at least one siphon which primes at a chamber high liquid level and loses prime at said chamber low liquid level and wherein said accumulation volume is sized with reference to an inflow rate and desired residence time of said oil and water mixture in said oil disengagement chamber such that, for a predefined range of inflows into said oil disengagement chamber, outflow from said~~

~~effluent water chamber will contain a proportion of oil in water substantially below a predefined limit, said method comprising:~~

~~installing a flow retarding device in the form of said siphon in or in association with a weir wall of the separator so that a rate of outflow of the substantially oil free volume of water is controlled as a function of the head of the liquid in the effluent water chamber.~~

61. (Currently amended) An oil from water separation system comprising:

a plurality of oil from water separators wherein each oil from water separator comprises:

an oil disengagement chamber adapted to receive an oil and water mixture and retain it for a sufficient time in a relatively undisturbed state whereby oil in the mixture floats to the top of the mixture resulting in a substantially oil free volume of water having a layer of oil derived from said oil and water mixture floating on the surface thereof;

an effluent water chamber partially separated from said oil disengagement chamber by an under flow baffle which ducts said substantially oil free volume of water to said effluent water chamber, the oil disengagement chamber having a chamber low liquid level which is higher than the under flow baffle, the outflow of said substantially oil free volume of water from said effluent water chamber being limited at a rate as a function of the head of the liquid in said effluent water chamber;

a flow retarding means comprising at least one siphon coupled to said effluent water chamber to limit the rate of outflow of said substantially oil free volume of water from said effluent water chamber wherein said flow retarding means primes at a chamber high liquid level and loses prime at said chamber low liquid level such that during operation, the level of said oil and water mixture will rise from said chamber low liquid level up to a higher liquid level and then return to said chamber low liquid level, thereby defining an oil and water mixture active lag capacity within an accumulation volume in said oil disengagement chamber

and wherein said flow retarding means operates to accumulate said oil and water mixture in said oil disengagement chamber in said accumulation volume above said chamber low liquid level and wherein said accumulation volume is sized with reference to inflow rate and desired residence time of said oil and water mixture in said oil disengagement chamber such that, for a predefined range of inflows into said oil disengagement chamber, outflow from said effluent water chamber will contain a proportion of oil in water substantially below a predefined limit; and

wherein said plurality of separators are connected in series whereby outflow from each preceding separator passes to an inlet of the next succeeding separator.

~~an oil disengagement chamber adapted to receive an oil and water mixture and retain it for a sufficient time in a relatively undisturbed state whereby oil in the mixture floats to the top of the mixture resulting in a substantially oil free volume of water having a layer of oil derived from said oil and water mixture floating on the surface thereof, said oil disengagement chamber partially separated from an effluent water chamber by an under flow baffle which ducts said substantially oil free volume of water to said effluent water chamber, the oil disengagement chamber having a low liquid level which is higher than the under flow baffle, the outflow of said substantially oil free volume of water from said effluent water chamber being limited by flow retarding means to a rate of outflow which is a function of the head of the liquid in said effluent water chamber, wherein during operation, the level of said oil and water mixture will rise from a chamber low liquid level up to a higher liquid level and then return to said chamber low liquid level, thereby defining an oil and water mixture active lag capacity within an oil and water mixture accumulation volume in said oil disengagement chamber and wherein said flow retarding means operates to accumulate said oil and water mixture in said oil disengagement chamber in said oil and water mixture accumulation volume above said chamber low liquid level and wherein said flow retarding means comprises at least one siphon which primes at a chamber high liquid level and loses prime at said chamber low liquid level and wherein said accumulation volume is sized with reference to~~

~~(a) inflow rate; and~~

~~(b) desired residence time of said oil and water mixture in said oil disengagement chamber such that, for a predefined range of inflows into said oil disengagement chamber, outflow from said effluent water chamber will contain a proportion of oil in water substantially below a predefined limit;~~

~~wherein said plurality of separators are connected in series whereby outflow from each preceding separator passes to an inlet of the next succeeding separator.~~

62. (Canceled).

63. (Previously presented) The separator of Claim 33 operable whereby said desired residence time is such that said oil and water mixture is retained in said oil and water mixture accumulation volume in said oil disengagement chamber for an effective residence time comprising a period of time long relative to conventional liquid full separators thereby to allow oil separation to occur prior to periodic siphoned exit.

64. (Previously presented) The separator of Claim 63 wherein said effective residence time is of the order of hours.

65. (Previously presented) The separator of Claim 33 operable such that periodic flushing of said separator by operation of said flow retarding means will result in a volume of liquid equal to said oil and water accumulation volume being moved periodically from said oil disengagement chamber through said effluent water chamber so as to exit via said flow retarding means.

66. (Previously presented) The separator of Claim 33 whereby said flow-retarding means operates to provide an outflow characteristic of outflow from said oil and water mixture accumulation volume which has a different characteristic from an inflow characteristic of inflow into said oil and water mixture accumulation volume.

67. (Currently amended) The separator of Claim 66 wherein said ~~rate of~~ outflow characteristic is a discontinuous function of the liquid level in said effluent water chamber.

68. (Currently amended) The separator of claim ~~65 or~~ 66 wherein there exists a mismatch whereby said ~~rate of~~ inflow characteristic is mismatched relative to said outflow ~~rate~~ characteristic.

69. (Currently amended) The separator of any one of Claim 33 or Claims 63 to 68 wherein separation can take place within said oil and water accumulation volume whilst liquid contained in said volume changes in quantity and level over time.

70. (Currently amended) The method of Claim 60 wherein said separator after conversion according to said method is operable whereby said desired residence time is such that said oil and water mixture is retained in said oil and water mixture accumulation volume in said oil disengagement chamber for an effective residence time comprising a period of time long relative to conventional liquid full separators thereby to allow oil separation to occur prior to periodic siphoned exit.

71. (Previously presented) The method of Claim 70 wherein said effective residence time is of the order of hours.

72. (Previously presented) The method of Claim 60 wherein said separator is operable such that periodic flushing of said separator by operation of said flow retarding means will result in a volume of liquid equal to said oil and water accumulation volume being moved periodically from said oil disengagement chamber through said effluent water chamber so as to exit via said flow retarding means.

73. (Previously presented) The method of Claim 60 wherein said flow-retarding means operates to provide an outflow characteristic of outflow from said oil and water mixture accumulation volume which has a different characteristic from an inflow characteristic of inflow into said oil and water mixture accumulation volume.

74. (Currently amended) The method of Claim 73 wherein said ~~rate of~~ outflow characteristic is a discontinuous function of the liquid level in said effluent water chamber.

75. (Currently amended) The method of Claim 73 ~~or 74~~ wherein there exists a mismatch whereby said ~~rate of~~ inflow characteristic is mismatched relative to said outflow ~~rate~~ characteristic.

76. (Currently amended) The method of any one of Claim 60 or Claims 70 to 75 wherein separation can take place within said oil and water accumulation volume whilst liquid contained in said volume changes in quantity and level over time.

77. (Previously presented) The separation system of Claim 61 wherein each said separator is operable whereby said desired residence time is such that said oil and water mixture is retained in said oil and water mixture accumulation volume in said oil disengagement chamber for an effective residence time comprising a period of time long relative to conventional liquid full separators thereby to allow oil separation to occur prior to periodic siphoned exit.

78. (Previously presented) The separation system of Claim 77 wherein said effective residence time is of the order of hours.

79. (Previously presented) The separation system of Claim 61 wherein each said separator is operable such that periodic flushing of said separator by operation of said flow retarding means will result in a volume of liquid equal to said oil and water accumulation volume being moved periodically from said oil disengagement chamber through said effluent water chamber so as to exit via said flow retarding means.

80. (Previously presented) The separation system of claim 61 wherein said flow-retarding means operates to provide an outflow characteristic of outflow from said oil and water mixture accumulation volume which has a different characteristic from an inflow characteristic of inflow into said oil and water mixture accumulation volume.

81. (Currently amended) The separation system of Claim 80 wherein said ~~rate of~~ outflow characteristic is a discontinuous function of the liquid level in said effluent water chamber.

82. (Currently amended) The separation system of Claim 80 ~~or 81~~ wherein there exists a mismatch whereby said ~~rate of~~ inflow characteristic is mismatched relative to said outflow ~~rate~~ characteristic.

83. (Currently amended) The separation system of any one of Claim 61 or Claims 77 to 82 wherein separation can take place within said oil and water accumulation volume whilst liquid contained in said volume changes in quantity and level over time.